

AMENDMENTS TO THE CLAIMS

1. (Withdrawn) A method for manufacturing a lead comprising the steps of:

placing on a mandrel, a first layer comprising at least one conductor of a first plurality of conductors wherein the at least one conductor of the first plurality of conductors is spirally wound in a first direction;

placing a second layer comprising at least one conductor of a second plurality of conductors on said first layer, wherein the at least one conductor of the second plurality of conductors is spirally wound in a second direction;

forming a lead body assembly that comprises the first layer and the second layer;

attaching at least one electrode located at a distal end of said lead body assembly to said at least one conductor of said first plurality of conductors;

attaching at least one connector located at a proximal end of said lead body assembly to said at least one conductor of said first plurality of conductors;

attaching at least one electrode located at a distal end of said lead body assembly to said at least one conductor of said second plurality of conductors;

attaching at least one connector located at a proximal end of said lead body assembly to said at least one conductor of said second plurality of conductors; and

removing the lead body assembly from the mandrel.
2. (Withdrawn) The method as claimed in Claim 1 wherein the second direction is spirally wound in a direction opposite to the first direction.
3. (Withdrawn) The method as claimed in Claim 2 wherein the first layer is a first unitary body.
4. (Withdrawn) The method as claimed in Claim 2 wherein the second layer is a second unitary body.
5. (Withdrawn) The method as claimed in Claim 1 wherein one of the first layer and the second layer further comprises extrusion material.
6. (Withdrawn) The method as claimed in Claim 1 further comprising the step of forming the lead body assembly into a unitary lead body assembly.

7. (Withdrawn) The method as claimed in Claim 6 wherein the step of forming the lead body assembly into a unitary lead body assembly further comprises the step of forming the first layer and the second layer into a unitary wall, wherein the at least one conductor of a first plurality of conductors and the at least one conductor of a second plurality of conductors are within the unitary wall.

8. (Withdrawn) The method as claimed in Claim 1 wherein the first layer and the second layer further comprise extrusion material.

9. (Withdrawn) The method as claimed in Claim 6 wherein the first layer and the second layer are comprised of similar types of extrusion material.

10. (Withdrawn) The method as claimed in Claim 5 further comprising the steps of: placing heat shrink tubing over the lead body assembly;

heating the lead body assembly to melt the extrusion material in the lead body assembly;

compressing the melted extrusion material around the at least one conductor of the second plurality of conductors in the lead body assembly;

cooling the lead body assembly to form the lead body; and

removing the heat shrink tubing from the lead body.

11. (Currently Amended) A lead for implantation into a human body, the lead comprising:

~~a lead body assembly comprising:~~

~~a wall having an inner portion that forms a lumen;~~

~~a first layer having an insulating material forming a unitary layer around the lumen;~~

at least one conductor spirally wound around the lumen in a first direction, the at least one conductor completely encapsulated by the insulating material, wherein the at least one conductor is connected between a corresponding electrode at a distal end of the lead and a corresponding connector at the proximal end of the lead; and

~~a second layer having at least one a second conductor spirally wound around the lumen in a second direction and interior to the outside of the wall, wherein the at least one second conductor is connected between a corresponding second electrode at the distal end of the lead and a corresponding second connector at the proximal end of the lead.~~

~~at least one electrode located at a distal end of said lead connected to said at least one conductor of said first plurality of conductors;~~

~~at least one electrode located at a distal end of said lead connected to said at least one conductor of said second plurality of conductors;~~

~~at least one connector located at a proximal end of said lead connected to said at least one conductor of said first plurality of conductors; and~~

~~at least one connector located at a proximal end of said lead connected to said at least one conductor of said second plurality of conductors.~~

12. (Original) The lead as claimed in Claim 11 wherein the second direction is in a direction opposite to the first direction.

13. (Currently Amended) The lead as claimed in Claim 11 42 wherein the ~~first~~ unitary layer is ~~a first unitary body~~ adjacent to the lumen.

14. (Currently Amended) The lead as claimed in Claim 11 42 wherein the at least the second conductor is adjacent to the lumen ~~layer is a second unitary body.~~

15. (Currently Amended) The lead as claimed in Claim 11 wherein a second insulating material forms a second unitary layer around the lumen, and wherein ~~one of the first layer and~~ at least the second conductor layer further comprises extrusion material is completely encapsulated in the second insulating material.

16. (Currently Amended) The lead as claimed in Claim ~~15~~ 14 wherein the ~~lead body assembly is~~ unitary layer and the second unitary layer form a single unitary body in a unitary lead body assembly.

17. (Canceled)

18. (Canceled)

19. (Currently Amended) The lead as claimed in Claim 11 wherein ~~one of the insulating material is an first layer and the second layer further comprises~~ extrusion material.

20. (Currently Amended) The lead as claimed in Claim 19 wherein ~~one of the first layer~~ insulating material and the second ~~layer~~ insulating material are comprised of similar types of ~~extrusion~~ insulating material.

21. (Original) The lead as claimed in Claim 11, wherein the diameter of the lead is no greater than 34 French.

22. (Original) The lead as claimed in Claim 11, further comprising at least five electrodes.

23. (Currently Amended) A system for stimulating a portion of a body, wherein the system comprises:

- a source for generating a stimulus; and
- a lead for receiving the stimulus from the source, ~~wherein the lead comprises:~~
 - ~~a lead body assembly comprising:~~
 - ~~a wall having an inner portion that forms a lumen;~~
 - ~~an first layer having an extrusion material forming a unitary layer around the lumen;~~
 - at least one conductor spirally wound around the lumen in a first direction, wherein the at least one conductor is completely disposed within the extrusion material; and
 - ~~an second layer having~~ at least a second ~~one~~ conductor spirally wound around the lumen in a second direction ~~and interior to the outside of the wall;~~
 - at least one electrode located at a distal end of the lead body; and
 - at least one connector located at a proximal end of the lead body, wherein the at least one connector and the at least one electrode are connected by at least one of the conductors.

24. (Original) The system as claimed in Claim 23 wherein the second direction is in a direction opposite to the first direction.

25. (Currently Amended) The system as claimed in Claim 23 ~~24~~ ~~wherein the first layer is a first~~ the unitary layer body is interior to the at least a second conductor.

26. (Currently Amended) The system as claimed in Claim 23 ~~24~~ ~~wherein the second layer is a second~~ the unitary layer body is exterior to the at least a second conductor.

27. (Currently Amended) The system as claimed in Claim 23 wherein ~~one of the first layer and the second layer further comprises extrusion material~~ a second extrusion material forms a second unitary layer around the lumen, and wherein the at least a second conductor is completely encapsulated in the second extrusion material.

28. (Currently Amended) The system as claimed in Claim 23 wherein the lead ~~body assembly~~ is a unitary lead ~~body~~ assembly.

29. (Canceled)

30. (Currently Amended) The system as claimed in Claim ~~27~~ 29 wherein the unitary ~~layer and the second unitary layer are part of the same unitary body wall comprises of the first layer and the second layer, wherein the at least one conductor of a first plurality of conductors and the at least one conductor of a second plurality of conductors are within the~~ unitary wall.

31. (Currently Amended) The system as claimed in Claim 30 wherein the unitary layer and the second unitary layer are separated by an intermediate layer ~~one of the first layer and the second layer further comprises extrusion material.~~

32. (Original) The system as claimed in Claim 23 wherein the diameter of the lead is no greater than 34 French.

33. (Original) The system as claimed in claim 23 further comprising at least five electrodes.

34. (Withdrawn) A method for manufacturing a lead body comprising the steps of:

preparing a first layer unitary body comprising a first plurality of conductors;

placing at least one conductor of a second plurality of conductors on said first layer unitary body;

placing extrusion material over the at least one conductor of the second plurality of conductors to form a lead body assembly;

wherein each conductor in said first plurality of conductors in said first layer unitary body is wound in a first direction; and

wherein said at least one conductor of said second plurality of conductors is wound in a second opposite direction.

35. (Withdrawn) The method as claimed in Claim 34 further comprising the steps of:

placing heat shrink tubing over the lead body assembly;

heating the lead body assembly to melt the extrusion material in the lead body assembly;

compressing the melted extrusion material around the at least one conductor of the second plurality of conductors in the lead body assembly;

cooling the lead body assembly to form the lead body;

and removing the heat shrink tubing from the lead body.

36. (Withdrawn) A method for manufacturing a lead body comprising the steps of:

preparing a first layer unitary body comprising a first plurality of conductors;

placing at least one conductor of a second plurality of conductors coated with a layer of extrusion material on the first layer unitary body;

wherein each conductor of said first plurality of conductors in said first layer unitary body is wound in a first direction; and

wherein said at least one conductor of said second plurality of conductors is wound in a second opposite direction.

37. (Withdrawn) A lead body assembly comprising:

a first layer unitary body comprising a first plurality of conductors;

an inner layer of extrusion material one the first layer unitary body;

a second plurality of conductors wherein each conductor of the second plurality of conductors is coated with a layer of extrusion material and wherein each conductor of the second plurality of conductors is placed on the inner layer of extrusion material;

wherein each conductor of said first plurality of conductors in said first layer unitary body is wound in a first direction; and

wherein each conductor of said second plurality of conductors is wound in a second opposite direction.

38. (Withdrawn) A system for stimulating a portion of a body, wherein the system comprises: a source for generating a stimulus; and

a lead for receiving the stimulus from the source, wherein the lead comprises a lead body formed from a lead body assembly comprising:

a first layer unitary body comprising a first plurality of conductors; an inner layer of extrusion material on the first unitary body;

a second plurality of conductors wherein each conductor of the second plurality of conductors is coated with a layer of extrusion material and wherein each conductor of the second plurality of conductors is placed on the inner layer of extrusion material; and

an outer layer of extrusion material placed over the second plurality of conductors; wherein each conductor of said first plurality of conductors in said first layer unitary body is wound in a first direction; and

wherein each conductor of said second plurality of conductors is wound in a second opposite direction.

39. (Withdrawn) A method of manufacturing a lead body comprising the steps of: placing on a mandrel a first layer unitary body comprising a first plurality of conductors; and

placing at least one conductor of a second plurality of conductors coated with a layer of extension material on said first Layer unitary body to form a lead body assembly;

wherein each conductor of said first plurality of conductors in said first Layer unitary body is wound in a first direction; and

wherein said at least one conductor of said second plurality of conductors is wound in a second opposite direction.

40. (Withdrawn) A lead body comprising:

a first layer unitary body comprising a first plurality of conductors; and

a second plurality of conductors in which each conductor of the second plurality of conductors is coated with a layer of extrusion material;

wherein each conductor of said first plurality of conductors in said first layer unitary body is wound in a first direction; and

wherein each conductor of said second plurality of conductors is wound in a second opposite direction.